Vennela Kataram

vennelakataram8@gmail.com | LinkedIn| 9375431128 | Chicago, IL

EDUCATION

Northern Illinois University, *DeKalb, IL*
Master's in Management Information Systems :: GPA - 3.89/4.00 ***Aug 2024 - present***
Bachelor's in Computer Science and Engineering from JNTU, Hyderabad, India :: GPA - 3.50/4.00 ***Aug 2020 – May 2024***
Certifications: Azure AI fundamentals, Microsoft Certified: Azure Fundamentals

EXPERIENCE

Graduate Assistant — Northern Illinois University, DeKalb, IL ***Jan 2025 – Present***

- Mentoring 110 graduate students in Python, Data Structures, and Machine Learning; designed learning modules improving lab completion rates by 40%.
- Developed automated grading and analytics tools in Python and Excel macros, reducing manual grading time by 50%.
- Collaborated with professors to generate ML-based assessment reports, integrating Pandas and Matplotlib for visual analytics.
- Built a Python-based data validation script improving accuracy of student performance tracking.
- Assisted with research on Deep Learning model interpretability using TensorFlow and SHAP libraries.

Full Stack Developer — Wilco Solutions, Hyderabad, India ***Jan 2023 – June 2024***

- Designed and developed dynamic web applications using React.js, Flask, and MySQL, achieving a 25% faster load time through optimized API calls.
- Collaborated with UI/UX team to implement responsive, accessible interfaces improving user engagement metrics by 30%.
- Built and consumed REST APIs for internal data synchronization and analytics dashboards.
- Developed data-driven features leveraging Pandas and Flask backends for interactive reporting.
- Streamlined CI/CD deployment using Docker and GitHub Actions, reducing downtime during feature rollouts.

Software Development Engineer — SoftPal, Hyderabad, India ***Jan 2022 – Jan 2023***

- Engineered and deployed micros service-based healthcare and warehouse platforms using Node.js, FastAPI, PostgreSQL, and Azure Functions.
- Led a 5-member backend team, introducing agile workflows, Git-based version control, and modular API structures improving delivery timelines by 35%.
- Built ETL pipelines processing over 100K+ healthcare records weekly, reducing latency by 40% and optimizing data throughput.
- Integrated SAP, WMS, and REST APIs to automate manual inventory tracking and reporting.
- Designed and deployed AI-based attendance recognition and a Chat LLM Agent using Azure ML, OpenAI APIs, and FastAPI, enabling intelligent task automation.

PROJECTS

entiment Classification using Random Multimodel Deep Learning (RMDL)

- Implemented Random Multimodel Deep Learning (RMDL) architecture integrating CNN, RNN, and DNN for sentiment analysis on Amazon and IMDB reviews. Integrated **BERT-based tokenization and text preprocessing**, enhancing contextual understanding and boosting model interpretability.
- Processed 50K+ data samples, using Word2Vec and GloVe embeddings for semantic feature extraction, improving classification accuracy by 18%. Applied **hyper parameter tuning using Bayesian Optimization**, reducing over fitting, and improving validation accuracy by **12%**.
- Built the end-to-end pipeline for preprocessing, model training, and evaluation using TensorFlow and Keras frameworks.
- Optimized model training through distributed data handling, reducing runtime by 25%.

Signature Forgery Detection using Convolutional Neural Networks (CNN)

- Developed a CNN-based system to detect forged vs genuine signatures using TensorFlow and OpenCV.
- Trained the model on 20K+ signature images, achieving 92% accuracy through hyper parameter tuning and dropout regularization.
- Integrated the trained model with a Flask web application for real-time prediction and verification.
- Designed RESTful APIs for input image handling, result prediction, and error management.

Full-Stack E-Commerce Web Application with AWS Deployment

- Developed a scalable e-commerce platform using React, Node.js, Express.js, and Mongo DB for end-to-end user transactions.
- Implemented JWT authentication and role-based access control (RBAC) for secure user sessions.
- Deployed application on AWS EC2 and S3 for scalability and performance optimization, improving load speed by 35%.
- Integrated payment gateway and asynchronous API routing for enhanced user experience.

Multi-Agent Reinforcement Learning System

- Designed and implemented a multi-agent game simulation environment using Deep Q-Networks (DQN) and Advantage Actor-Critic (A2C) algorithms for autonomous decision-making.
- Architected agent collaboration and competition dynamics with shared and independent reward functions, optimizing convergence speed and adaptability. Achieved a 99% target success rate within 2,000 training episodes, validating system robustness and stability.
- Enhanced learning efficiency through policy initialization optimization, reward shaping, and experience replay tuning.
- Visualized agent performance metrics and episode progression using TensorBoard and Matplotlib dashboards.

TECHNICAL SKILLS

Programming Languages	: Python, Java, JavaScript (ES6+, Typescript), SQL, C++
Backend Development	: FastAPI, Flask, Django, Node.js, Express.js, RESTful APIs, Microservices, Celery
Frontend Development	: React.js, HTML5, CSS3, Bootstrap, Tailwind CSS
AI / Machine Learning	: TensorFlow, PyTorch, Scikit-learn, Keras, LangChain, Hugging Face, Deep Learning, NLP, Reinforcement Learning, LLM Fine-tuning, Computer Vision
Cloud & DevOps	: Microsoft Azure (Functions, ML, Blob Storage), AWS (EC2, S3), Docker, Kubernetes, Jenkins, GitHub Actions, CI/CD Pipelines
Databases & Data Engineering	: MySQL, PostgreSQL, Mongo DB, ETL Pipelines, Data Warehousing
Testing & Quality Assurance	: PyTest, UnitTest, Selenium, Integration Testing, API Testing (Postman)
Tools & Methodologies	: Git, GitHub, VS Code, Jupyter Notebook, Power BI, Apache Airflow, Jira, Agile & Scrum Practices